

Employment and Employee Compensation of U.S. Multinational Companies in 1977

Comprehensive data on employment and employee compensation of U.S. multinational companies (MNC's) were collected in BEA's 1977 benchmark survey of U.S. direct investment abroad, the results of which were released last year.¹ The data are important for analyzing the effect of U.S. MNC's on labor, both in the United States and abroad. In this article they are used to examine the distribution of total MNC employment between U.S. parents and their foreign affiliates; the proportion of all-U.S.-business employment accounted for by U.S. parents; the country and industry distribution of foreign affiliate employment, including the geographical concentration of employment; the distribution of parent and affiliate employment by employment size class; and affiliates' shares of total manufacturing employment in 10 developed countries. They are also used to examine and compare hourly compensation paid to production workers in manufacturing by U.S. parents and their majority-owned foreign affiliates, and to compare affiliate compensation rates with those for all manufacturing businesses in selected for-

foreign countries. A subsequent article will discuss growth in affiliate employment (and assets) since 1966, the year covered by the previous benchmark survey.

The employment data are also of interest as a measure of the overall size of U.S. MNC operations. Although employment has some limitations as a measure of size, it has the advantage of being affected neither by methods of valuation (as are, for example, total assets, which are based on book values), nor by the sources and patterns of financing (as is, for example, the direct investment position).

Although the 1977 benchmark survey covered parents and affiliates in all industries, this article, like others in a series of BEA studies of U.S. MNC's based on that survey, covers only nonbank MNC's. A nonbank MNC consists of a nonbank U.S. parent that has at least one nonbank foreign affiliate, and its nonbank affiliate(s). In the 1977 survey, considerably more data were collected for nonbank parents and affiliates than for bank parents and affiliates, because the latter already were required to report most of the information needed for policy purposes to other U.S. Government agencies.

Highlights

- Worldwide employment of U.S. MNC's was 26,081,327; U.S. parents accounted for 72 percent, and their foreign affiliates for 28 percent, of the total. MNC's with U.S. parents in manufacturing accounted for about two-thirds of worldwide MNC employment.

- U.S. parents accounted for 85 percent of the employment of all U.S. business in industries covered by the Census Bureau's *Enterprise Statistics*. In petroleum and manufacturing, the parents' shares were over 50 percent.

- Affiliates classified in manufacturing accounted for just over two-thirds of total affiliate employment. Within manufacturing, affiliate employment was largest in "other manufacturing" and transportation equipment.

- More than two-thirds of foreign affiliates' total employment was in developed countries. Within the developed countries, 62 percent was in Europe. Within the developing countries, 62 percent was in Latin America.

- For all industries combined, four countries—the United Kingdom, Canada, Germany, and France—accounted for 44 percent of affiliate employment. Eight countries—the above four, plus Brazil, Japan, Mexico, and Australia—accounted for 65 percent. Among six major industries, the geographical concentration of employment was highest in finance (except banking), insurance, and real estate and in mining.

- For U.S. parents—and, to a lesser extent, for foreign affiliates—employment was skewed toward the larger companies. Parents having over 10,000 employees accounted for only 13 percent of the number, but for 78 percent of the total employment, of all parents.

- Among 10 developed countries for which reasonably comparable data could be obtained, the affiliate share of total foreign manufacturing employment was by far the highest in Canada, at 38 percent. It was the lowest in Denmark and Japan (2 percent each).

- For U.S. parents in manufacturing, hourly compensation of production workers was \$8.76; for foreign affiliates in manufacturing, it was \$4.92—about 56 percent of the parents' rate. In petroleum and coal products, the rate for parents was

1. U.S. direct investment abroad exists when one U.S. person (U.S. parent) has a direct or indirect ownership interest of 10 percent or more in a foreign business enterprise (foreign affiliate). U.S. MNC's are U.S. companies that have direct investment abroad; an MNC consists of the U.S. parent and all of its foreign affiliates. A brief description of the benchmark survey and highlights of the data were given in International Investment Division, "1977 Benchmark Survey of U.S. Direct Investment Abroad," *SURVEY OF CURRENT BUSINESS* 61 (April 1981): 29-37. Detailed data and a more complete methodology of the survey were published in U.S. Department of Commerce, Bureau of Economic Analysis, *U.S. Direct Investment Abroad, 1977* (Washington, D.C.: U.S. GPO, April 1981).

NOTE.—Arnold Gilbert did the computer programming for most of the tables in this article and was responsible for the analysis-of-variance routine applied to foreign affiliate compensation rates. Ethel J. Wheeler provided statistical assistance.

Table 1.—Worldwide Employment of U.S. Multinational Companies, by Industry of U.S. Parent, 1977

	Amount			Distribution		
	Number of employees			Percent		
	Total	U.S. parents	Foreign affiliates	Total	U.S. parents	Foreign affiliates
All industries	28,081,321	18,884,638	7,196,681	100	72	28
Mining	104,484	85,242	41,142	100	61	39
Metal mining	48,368	21,786	26,572	100	45	55
Iron	(^a)	(^a)	(^a)	100	(^a)	(^a)
Copper, lead, zinc, gold, and silver	(^a)	(^a)	(^a)	100	(^a)	(^a)
Bauxite, other ores, and services	(^a)	100	(^a)	100	(^a)	(^a)
Coal and other nonmetallic minerals	56,116	43,546	14,570	100	75	25
Petroleum	1,316,506	896,511	424,995	100	68	32
Oil and gas extraction	86,147	68,984	16,163	100	81	19
Crude petroleum (no refining) and gas	48,405	37,340	9,065	100	80	20
Oil and gas field services	38,742	31,644	7,118	100	82	18
Petroleum and coal products	1,479,285	717,685	361,700	100	66	34
Integrated refining and extraction	(^a)	709,020	(^a)	100	(^a)	(^a)
Refining without extraction	(^a)	(^a)	(^a)	100	(^a)	(^a)
Petroleum and coal products, nec	(^a)	(^a)	538	100	(^a)	(^a)
Petroleum wholesale trade	95,815	57,633	38,277	100	60	40
Other	56,059	46,224	8,835	100	84	16
Manufacturing	17,497,913	11,775,831	5,322,882	100	69	31
Food and kindred products	1,506,662	1,016,702	483,880	100	68	32
Grain mill and bakery products	276,385	189,016	77,969	100	72	28
Beverages	188,569	122,782	50,777	100	67	33
Other	1,041,718	694,904	345,214	100	67	33
Chemicals and allied products	1,354,789	1,207,575	747,114	100	62	38
Industrial chemicals and synthetics	287,088	262,827	244,221	100	85	15
Drugs	479,257	243,902	235,445	100	50	50
Soap, cleaners, and toilet goods	802,106	167,363	134,743	100	55	45
Agricultural chemicals	26,985	21,277	5,708	100	79	21
Other	149,283	112,398	36,877	100	75	25
Primary and fabricated metals	1,342,214	1,484,236	457,973	100	75	25
Primary metal industries	1,276,533	990,625	284,948	100	78	22
Ferrous	866,385	732,637	122,878	100	86	14
Nonferrous	420,198	257,988	162,280	100	61	39
Fabricated metal products	665,681	493,611	173,070	100	74	26
Machinery, except electrical	2,309,887	1,845,343	762,344	100	67	33
Farm and garden machinery and equipment	126,924	90,582	36,341	100	71	29
Construction and related machinery	454,937	312,977	143,068	100	69	31
Office and computing machines	800,635	505,523	297,815	100	58	42
Other	865,289	636,261	225,328	100	74	26
Electric and electronic equipment	1,933,085	1,274,060	658,536	100	66	34
Household appliances	281,558	169,644	111,912	100	60	40
Radio, television, and communication equipment	409,897	320,321	89,699	100	78	22
Electronic components and accessories	453,810	157,109	106,801	100	66	34
Other	777,220	627,015	360,216	100	64	36
Transportation equipment	3,272,146	2,298,022	1,093,144	100	62	38
Motor vehicles and equipment	2,200,811	1,356,856	645,935	100	62	38
Other	1,071,335	941,166	447,209	100	50	50
Other manufacturing	4,096,630	2,956,983	1,129,547	100	72	28
Tobacco manufactures	174,893	97,992	78,900	100	45	55
Textile products and apparel	628,108	487,753	157,255	100	81	19
Lumber, wood, furniture, and fixtures	325,980	285,438	55,482	100	83	17
Paper and allied products	606,511	341,639	144,181	100	68	32
Printing and publishing	260,467	253,415	47,049	100	34	66
Rubber products	626,346	223,628	242,658	100	56	44
Miscellaneous plastic products	88,537	67,268	16,338	100	30	70
Glass products	261,082	131,090	69,992	100	45	55
Stone, clay, cement, and concrete	280,370	170,639	79,731	100	68	32
Instruments and related products	506,920	414,688	131,282	100	70	30
Other	269,646	250,373	49,273	100	94	6
Trade	2,926,779	2,471,642	454,137	100	84	16
Wholesale trade	377,044	270,893	106,051	100	72	28
Durable goods	178,495	129,879	46,816	100	73	27
Non-durable goods	200,549	141,114	59,235	100	70	30
Retail trade	2,548,735	2,200,649	348,086	100	86	14
Finance (except banking), insurance, and real estate	1,292,723	862,494	430,219	100	67	33
Finance, except banking	172,898	145,462	28,686	100	85	15
Insurance	1,002,387	694,844	307,543	100	69	31
Real estate	7,205	6,187	1,028	100	85	15
Holding companies	42,880	15,541	47,319	100	25	75
Individuals, estates, and trusts	47,683		47,683	100		100
Other industries	1,341,422	2,810,105	523,316	100	84	16
Agriculture, forestry, and fishing	(^a)	24,644	(^a)	100	(^a)	(^a)
Construction	(^a)	283,471	(^a)	100	(^a)	(^a)
Transportation, communication, and public utilities	1,344,122	1,772,387	171,735	100	92	8
Transportation	(^a)	682,420	(^a)	100	(^a)	(^a)
Communication and public utilities	(^a)	1,089,967	(^a)	100	(^a)	(^a)
Services	901,896	735,844	162,292	100	82	18

^a Suppressed to avoid disclosure of data of individual companies.

1. Consists of U.S. parents that were individuals, estates, or trusts directly holding investments. None of these parents were required to report employment for other financial and operating data in the 1977 benchmark survey. No foreign affiliates are classified in this category; however, when affiliate data are classified by industry of U.S. parent, the data for affiliates of individuals, estates, and trusts are shown in this category.

only moderately higher than that for affiliates—\$9.06 compared with \$8.63.

• For affiliates, compensation rates were influenced independently by both the affiliates' country and industry; the country effects were considerably more systematic than the industry effects.

• In 27 of 80 countries examined, majority-owned foreign affiliates in manufacturing (including petroleum and coal products) paid production workers at higher rates than did all foreign manufacturing businesses combined. Nevertheless, among countries, variations in the affiliate rates tended to follow rather closely the variations in rates for all foreign businesses.

Worldwide MNC Employment

Table 1 shows worldwide MNC employment, as well as employment of U.S. parents and foreign affiliates separately. In this and subsequent tables, employment of a given parent or affiliate is measured by the average number of full- and part-time employees on its payroll during the year. Because the table focuses on the MNC as a whole, employment of both the U.S. parent and its foreign affiliates was classified in a single industry. Although it would have been desirable to base the classification on the worldwide consolidated activities of the MNC as a whole, no MNC-wide industry codes were available from the benchmark survey; instead, the industry of the U.S. parent was used.²

Worldwide employment of U.S. MNC's was 26,081,327. About two-thirds was in manufacturing. "Other industries"—agriculture, forestry, and fishing; construction; transportation, communication, and public utilities; and services—accounted for 13 percent. Trade accounted for 11 percent, and petroleum and finance (except banking), insurance, and real estate

2. In the benchmark survey, the industry code assigned to a given parent or affiliate was that of the industry in which its sales were largest. In most cases, the MNC-wide industry code would have been the same as the parent's, because U.S. parents typically accounted for a considerably larger share of total MNC sales than did their foreign affiliates, and most affiliates were classified in the same industries as their parents. (Other tables show affiliate data classified by industry of the affiliate itself, indicating the industries of the foreign business enterprises for which the employees actually worked, rather than the industries of those enterprises' U.S. parents.)

for 5 percent each. Mining accounted for the remainder, less than 1 percent.

Among the major manufacturing industries, MNC employment was largest in "other manufacturing"—a residual category consisting of industries covered by 20 separate codes in the benchmark survey; this category accounted for nearly one-fourth of total manufacturing employment. Transportation equipment accounted for 20 percent, and the remainder was fairly evenly distributed among the other major manufacturing industries.

U.S. parents accounted for a much larger share of total MNC employment than did their foreign affiliates. Of the total, the parents accounted for 72 percent, and their affiliates for 28 percent. Among the six major industries, affiliate shares were above the 28-percent all-industries average in all but two—trade and "other industries," where affiliate shares were only 16 percent each. Within these industries, affiliate shares were particularly low in retail trade; transportation, communication, and public utilities; and services. The affiliate share was largest, at 39 percent, in mining. This reflected a particularly large share in metal mining; in coal and other nonmetallic minerals, the affiliate share was about the same as that in all industries combined.

In manufacturing, foreign affiliates accounted for 31 percent of MNC employment. Affiliate shares ranged from 24 percent in metals to 38 percent in chemicals.

U.S. Parent and All-U.S.-Business Employment Compared

U.S. parents accounted for a significant share of employment by all U.S. businesses, as measured by their shares in industries within the scope of the Census Bureau's *Enterprise Statistics* (table 2). The in-scope industries were mining, petroleum (selected subindustries), manufacturing, trade, and "other in-scope industries," which consists of construction and services (selected subindustries).³ Although,

3. The in-scope petroleum and service subindustries are listed in table 2, footnotes 2 and 3.

for all U.S. businesses, the Census data are the most comparable of those available to the data for U.S. parents, some incomparability between the two data sets may exist because of differences in classification by industry or in consolidation of companies. Consequently, the comparisons discussed below should be regarded as providing rough orders of magnitude.

Of all-U.S.-business employment of 44,312,000 in the five major in-scope industries, U.S. parents accounted for 15,591,000, or 35 percent.⁴ In petroleum and manufacturing, parents' shares were over 50 percent; in mining, trade, and "other in-scope industries," their shares were much lower—under 20 percent.

In mining, the parent share was low partly because U.S. businesses classified in mining included many small, independent coal mining operators, who tended not to make direct investments abroad. Many of the U.S. companies that did make mining investments abroad were themselves primarily engaged, and classified, in industries other than mining.

The low parent shares in trade and "other in-scope industries" may also have reflected a relatively high incidence of small enterprises that generally lacked the resources or incentives to establish foreign operations. In addition, success in those industries depends upon intimate knowledge of local markets, which typically is obtained more readily by local than by U.S. (or other foreign) investors. In manufacturing and petroleum, in contrast, success often depends to a greater degree upon unique products

4. The Census *Enterprise Statistics* also contain data on wages and salaries (referred to as "annual payroll" in that publication). The data indicate that U.S. parents' share in wages and salaries paid by all U.S. businesses was higher than their share in employment—43 percent compared with 35 percent. This difference in shares indicates that wages and salaries per employee were higher for the parents. Data are not available at the enterprise level to determine to what extent the difference is due to differences in wages and salaries per hour worked or differences in hours worked per employee. In any event, the differences were relatively small except in petroleum. In that industry, wages and salaries per employee was probably depressed, relative to that of U.S. parents, by low wages and salaries of employees of retail service stations. Such employees accounted for a much larger share of all-U.S.-business employment, which included large numbers of employees of independent service station operators, than of U.S. parent employment, which was accounted for largely by employees of the major oil companies.

or processes, which have often enabled U.S. investors to penetrate foreign markets.

Within manufacturing, U.S. parents' shares of all-U.S.-business employment were by far the highest—97 and 86 percent, respectively—in chemicals and transportation equipment.⁵ Partly because of the importance of economies of scale, employment in both industries was highly concentrated among the largest firms, practically all of which had at least some direct investment abroad. The parents' share of U.S. business employment was lowest in "other manufacturing."

Industry and Country Distribution of Foreign Affiliate Employment

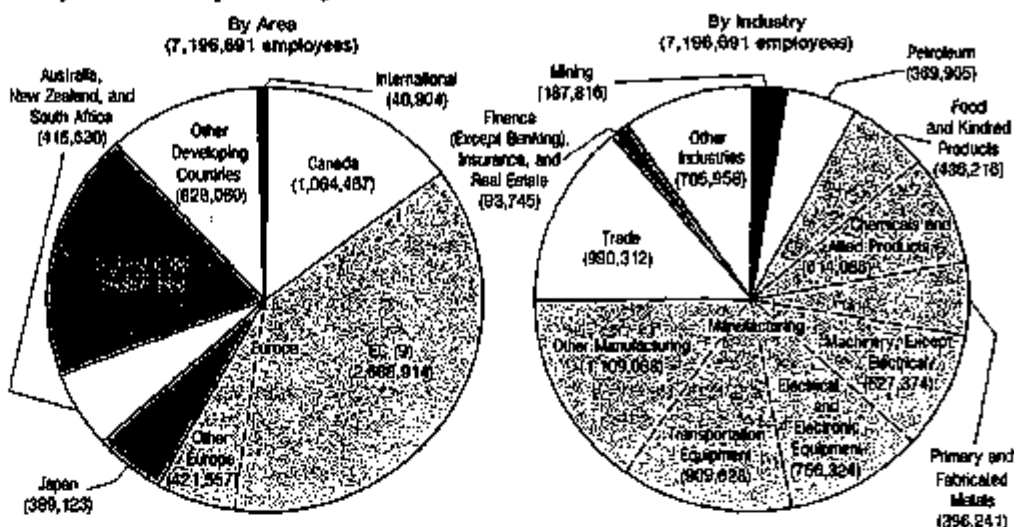
Industry distribution

In table 3, and all subsequent tables that show data for foreign affiliates by industry, the data for affiliates are classified in the affiliates' own industries, rather than, as in table 1, in the industries of their U.S. parents. Of total affiliate employment, just over two-thirds was in manufacturing (chart 4). Trade accounted for 14 percent and "other industries" for 10 percent. Petroleum accounted for 5 percent, mining for 3 percent, and finance (except banking), insurance, and real estate for the remainder, about 1 percent.

Within manufacturing, affiliate employment was largest in "other manufacturing," which accounted for 23 percent of total manufacturing employment. Transportation equipment accounted for 19 percent, electrical machinery for 16 percent, and non-electrical machinery and chemicals for 13 percent each. Food and metals each accounted for less than 10 percent.

Among the major industries, the differences between affiliate employment classified on the two bases—by industry of affiliate and by industry of U.S. parent—were proportionately largest in mining, trade, and finance (except banking), insurance, and real estate. Employment of mining affil-

Employment of Nonbank Foreign Affiliates of Nonbank U.S. Parents, 1977, by Area and by Industry



U.S. Department of Commerce, Bureau of Economic Analysis

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ates was more than four and one-half times as large as the employment of affiliates whose U.S. parents were classified in mining. As noted earlier, a large share of U.S. direct invest-

Table 2.—Employment of U.S. Parents and All U.S. Businesses, 1977¹

	Thousands		U.S. parents as a percentage of all U.S. businesses
	U.S. parents	All U.S. businesses	
All Industries.....	15,885	n.a.	n.a.
In-scope industries.....	15,091	44,312	35
Mining.....	65	609	16
Petroleum (selected subindustries) ²	849	1,448	59
Manufacturing.....	11,775	21,450	55
Food and kindred products.....	1,017	2,081	49
Chemicals and allied products.....	1,206	1,246	97
Primary and fabricated metals.....	1,484	2,782	54
Machinery, except electrical.....	1,546	2,306	67
Electrical and electronic equipment.....	1,274	2,163	59
Transportation equipment.....	2,299	2,671	86
Other manufacturing.....	2,957	8,311	36
Trade.....	2,472	18,354	13
Other in-scope industries ³	490	4,681	9
Partially in-scope industries ⁴	548	5,434	n.a.
Out-of-scope industries ⁵	2,745	n.a.	n.a.

n.a. Not available.

n.c. Not comparable.

1. All-U.S.-business data were obtained from U.S. Department of Commerce, Bureau of the Census, 1977 *Shopper Statistics: General Report on Industrial Organization* (Washington, D.C.: U.S. GPO, 1981), table 4.

2. Includes oil and gas extraction, petroleum and coal products, petroleum wholesale trade, and gasoline service stations.

3. Includes construction; advertising; motion pictures, including television tape and film; and engineering, architectural and surveying services.

4. Includes service industries not listed in footnotes 2 or 3 as being in- or out-of-scope. These are industries for which U.S. parent data at the most disaggregated level contained both in- and out-of-scope industries. The major industries in the latter group were health (except dental laboratories), educational, and social services; U.S. businesses in these industries tended not to have significant direct investments abroad.

5. Includes petroleum industries not listed in footnote 2; finance (except banking), insurance, and real estate; agriculture, forestry, and fishing; transportation, communication, and public utilities; accounting, auditing, and bookkeeping services.

ment in mining was by parents not classified in mining. Generally, these parents either (1) did not have significant mining operations domestically, but used foreign mining affiliates as a source of raw materials, or (2) did have significant domestic mining operations, but were nevertheless classified in nonmining industries, such as petroleum and manufacturing, because their operations in those industries were even larger.

Employment of trade affiliates was more than twice as large as employment of affiliates whose U.S. parents were classified in trade. Many parents in nontrade industries, primarily manufacturing, used trade affiliates to sell goods produced by the parents or their nontrade foreign affiliates. Also, the employment data from the benchmark survey probably overstated actual employment of trade affiliates, due to a classification problem involving a large, highly diversified, minority-owned affiliate.⁶

Employment of affiliates in finance (except banking), insurance, and real estate, unlike that of mining and trade affiliates, was considerably smaller than employment of affiliates whose U.S. parents were classified in

6. When this affiliate's benchmark survey report was filed with BEA, information from its U.S. parent, which was classified in electrical machinery manufacturing, indicated that it was a wholesale trade affiliate; information obtained after the survey results had been published indicated that the affiliate probably should have been classified in electrical machinery manufacturing instead.

5. One or both of the above-mentioned comparability problems (i.e., possible differences in industry classification or company consolidation) may exist in chemicals, whose share may thus have been somewhat overstated.

Table 3.—Employment of Foreign Affiliates, 1977, Country by Industry

(Number of employees)

	All industries	Mining	Petroleum	Manufacturing								Trade (except banking, insurance, and real estate)	Other industries
				Total	Food and kindred products	Chemicals and allied products	Primary and fabricated metals	Machinery, except electrical	Electric and electronic equipment	Transportation equipment	Other manufacturing		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
All countries	7,196,891	187,316	268,905	4,348,957	436,216	614,886	396,341	627,374	754,324	999,628	1,109,088	890,312	93,745
Developed countries	4,940,691	93,345	234,135	3,403,634	332,742	376,730	281,357	528,286	449,655	736,021	768,835	633,609	75,857
Canada	1,054,467	88,063	58,412	614,828	53,187	60,314	59,300	53,960	69,206	113,341	192,460	189,906	32,891
Europe	3,110,471	2,761	117,736	2,348,374	181,908	255,727	205,710	414,106	388,741	508,406	473,779	408,192	38,166
European Communities (9)	2,688,914	681	90,987	2,074,335	127,155	222,622	170,928	399,758	277,859	467,615	417,603	337,205	24,477
Belgium	187,902	(*)	4,778	117,682	7,327	19,807	5,710	16,532	30,856	(*)	(*)	22,300	1,514
Denmark	26,311	(*)	3,061	9,172	(*)	(*)	(*)	(*)	(*)	(*)	2,012	5,839	257
France	470,886	(*)	9,454	380,711	18,571	33,324	88,497	58,778	34,696	81,745	68,320	63,887	1,787
Germany	597,405	(*)	21,802	482,244	20,991	85,878	96,294	73,880	64,341	177,186	99,078	58,870	3,030
Ireland	27,555	(*)	2,116	22,005	2,677	2,868	882	(*)	2,791	(*)	8,119	2,883	45
Italy	212,843	(*)	9,313	168,042	10,898	33,812	8,788	39,372	37,675	13,291	34,471	17,942	738
Luxembourg	7,348	(*)	120	7,308	(*)	(*)	(*)	1,704	(*)	(*)	(*)	84	(*)
Netherlands	136,083	(*)	8,015	96,857	9,766	18,504	11,852	16,058	5,512	(*)	(*)	15,163	1,859
United Kingdom	1,089,290	(*)	31,844	819,413	56,558	86,210	70,331	146,487	97,304	172,070	181,396	152,287	65,087
Other Europe	421,557	2,080	25,979	274,639	24,747	39,105	34,785	22,551	51,082	40,783	56,176	70,897	8,688
Austria	32,129	(*)	(*)	13,894	1,178	1,827	978	1,742	(*)	(*)	6,076	1,378	1,588
Qreece	15,801	(*)	1,905	9,834	1,395	1,897	(*)	(*)	1,069	(*)	(*)	2,586	654
Norway	21,532	(*)	6,377	9,510	(*)	495	(*)	(*)	(*)	(*)	1,788	4,313	2,077
Portugal	13,372	(*)	(*)	19,394	1,129	2,091	(*)	(*)	4,583	(*)	2,955	3,961	(*)
Sweden	216,721	1,626	7,455	170,664	16,501	21,297	27,118	9,695	38,197	35,094	22,022	18,770	825
Switzerland	42,954	(*)	5,055	25,100	2,683	2,454	1,388	7,560	(*)	1,822	(*)	10,036	1,571
Turkey	47,169	(*)	1,353	18,505	(*)	2,182	1,370	2,063	4,078	(*)	(*)	19,188	1,336
Other	14,586	(*)	(*)	8,223	(*)	(*)	(*)	(*)	(*)	(*)	2,931	638	(*)
Japan	10,563	(*)	1,166	8,970	(*)	(*)	59	(*)	(*)	(*)	2,688	2,925	42
Japan	989,122	0	21,442	185,504	11,326	29,242	7,392	37,246	13,794	42,081	44,323	169,296	4,913
Australia, New Zealand, and South Africa	416,530	52,521	16,485	254,930	26,395	31,937	18,965	22,094	27,354	68,191	58,273	66,297	4,857
Australia	269,344	27,527	9,887	167,090	14,889	20,131	13,492	14,648	15,877	54,235	34,988	48,520	3,824
New Zealand	21,243	(*)	(*)	18,094	2,290	1,957	256	797	1,144	(*)	(*)	4,962	281
South Africa	126,041	(*)	(*)	74,746	9,977	9,249	5,227	7,839	11,033	(*)	(*)	10,816	982
Developing countries	2,175,096	94,471	136,068	1,445,321	123,474	237,880	104,974	99,078	396,149	178,607	340,283	156,712	17,888
Latin America	1,347,036	41,563	40,883	968,184	127,888	172,577	79,970	74,463	135,111	141,775	235,430	104,538	11,509
South America	771,000	20,235	19,288	595,855	58,229	111,009	46,555	53,872	71,528	106,734	146,028	55,292	7,433
Argentina	109,039	(*)	4,158	91,141	8,834	30,454	3,146	7,198	5,375	23,867	22,287	6,535	424
Brazil	435,661	7,432	6,706	351,691	26,716	60,546	26,894	41,643	57,511	87,768	77,523	19,852	2,887
Chile	10,121	(*)	613	4,803	(*)	1,707	651	(*)	(*)	(*)	(*)	1,970	(*)
Colombia	61,276	(*)	3,349	38,215	3,445	11,537	3,807	581	1,595	2,043	15,327	5,854	584
Ecuador	9,628	(*)	871	5,330	(*)	1,402	(*)	(*)	226	(*)	2,176	1,096	82
Peru	25,324	8,106	990	18,889	1,848	3,494	1,096	(*)	1,313	(*)	(*)	3,888	(*)
Venezuela	101,241	(*)	2,182	70,974	12,151	11,194	5,877	1,171	3,891	12,763	23,937	16,988	2,387
Other	18,716	899	683	12,812	8,675	765	(*)	(*)	(*)	(*)	729	140	3,456
Central America	490,374	14,211	7,238	337,914	(*)	58,989	33,140	(*)	61,529	(*)	81,252	44,280	1,951
Honduras	370,115	5,652	2,683	302,817	30,880	53,279	32,285	20,180	55,872	38,510	70,701	46,588	1,038
Panama	20,829	(*)	(*)	2,526	(*)	874	(*)	(*)	(*)	(*)	(*)	2,692	394
Other	89,431	4,558	(*)	82,571	(*)	5,038	608	(*)	(*)	(*)	(*)	4,985	324
Other Western Hemisphere	85,982	7,516	14,358	49,315	(*)	2,579	275	(*)	2,634	(*)	8,150	4,384	2,125
Bahamas	7,596	(*)	(*)	580	(*)	(*)	(*)	(*)	(*)	(*)	217	1,026	4,611
Bermuda	2,481	(*)	78	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	246	888
Netherlands Antilles	4,660	(*)	(*)	314	(*)	(*)	(*)	(*)	(*)	(*)	(*)	169	61
Trinidad and Tobago	15,707	(*)	(*)	2,395	294	1,247	(*)	(*)	525	(*)	(*)	583	158
Other	85,319	7,814	1,190	(*)	(*)	918	(*)	(*)	(*)	(*)	7,413	2,361	688
Other Africa	161,129	49,000	22,008	82,527	10,601	3,328	3,515	281	4,127	1,784	8,291	8,779	822
Saharan	25,334	0	10,295	5,488	1,222	868	189	(*)	(*)	(*)	1,661	981	(*)
Egypt	5,705	0	2,757	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	2,326
Libya	5,632	0	4,214	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	42
Other	16,197	0	3,224	5,019	1,222	(*)	189	(*)	(*)	(*)	(*)	(*)	(*)
Sub-Saharan	135,196	49,000	11,113	27,142	9,373	3,069	2,426	(*)	(*)	(*)	6,780	7,988	(*)
Liberia	29,768	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	102
Nigeria	17,887	(*)	4,385	4,151	(*)	1,131	(*)	(*)	(*)	(*)	(*)	2,136	(*)
Other	87,522	(*)	(*)	8,840	(*)	1,929	(*)	(*)	2,972	(*)	4,497	(*)	438
Middle East	133,317	903	41,159	31,102	1,677	5,110	5,816	2,357	9,010	8,890	4,392	9,795	1,096
Israel	21,155	(*)	16,706	(*)	(*)	(*)	(*)	(*)	(*)	(*)	2,750	(*)	(*)
Other	102,162	893	35,696	10,315	(*)	2,681	(*)	682	(*)	(*)	(*)	6,305	14
Iran	38,047	(*)	4,620	9,881	(*)	2,386	(*)	(*)	896	(*)	(*)	6,426	(*)
Other	64,830	(*)	31,068	334	(*)	285	(*)	(*)	(*)	(*)	(*)	496	(*)
Other	12,288	(*)	4,061	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	1,046	(*)
Other Asia and Pacific	428,614	2,795	26,059	398,408	33,338	55,751	14,773	21,967	158,421	21,012	92,140	33,502	4,461
Hong Kong	44,847	0	596	32,778	(*)	982	(*)	2,458	18,791	(*)	8,310	5,554	2,001
India	94,622	0	1,078	90,938	(*)	30,180	(*)	12,748	(*)	(*)	18,035	2,541	(*)
Indonesia	52,485	(*)	12,782	14,464	306	2,224	293	(*)	5,250	(*)	6,202	2,541	(*)
Malaysia	35,989	(*)	1,324	28,608	458	1,100	(*)	(*)	23,536	(*)	2,408	2,330	(*)
Philippines	111,769	0	1,973	89,721	25,379	7,696	(*)	(*)	8,922	(*)	33,127	8,331	1,268
Singapore	44,184	0	2,780	35,330	(*)	389	1,066	3,750	25,122	(*)	3,184	3,075	2,679
South Korea	31,058	0	3,022	23,537	978	3,448	(*)	(*)	8,486	(*)	3,289	1,565	(*)
Taiwan	68,040	0	830	85,364	983	3,623	(*)	(*)	47,723	(*)	7,750	2,949	45
Thailand	27,337	232	(*)	15,130	4,227	1,211	986	(*)	(*)	(*)	6,669	6,459	4,118
Other	18,824	(*)	(*)	12,441	(*)	4,523	(*)	(*)	1,870	(*)	4,959	904	(*)
International	49,944	0	25,692	0	0	0	0	0	0	0	0	0	15,212
Addendum—OPEC	304,937	6,692	68,542	106,609	14,700	18,708	8,090	2,061	11,270	15,585	35,395	29,513	3,518

* Suppressed to avoid disclosure of data of individual companies.

that industry. One reason was that most of the employment of the foreign affiliates of a large, diversified U.S. parent classified in insurance was in electrical machinery manufacturing. Also, for U.S. parents, the finance (except banking), insurance, and real estate industry included parents classified as "individuals, estates, or trusts." There was no comparable industry category for affiliates; therefore, when employment was classified by industry of affiliate, affiliates whose parents were individuals, estates, or trusts appeared elsewhere.

Country distribution

Of total affiliate employment, 69 percent was in developed countries, 30 percent in developing countries, and 1 percent in "international." (Affiliates classified in "international" were those that had operations spanning more than one country and that were engaged in petroleum shipping, other water transportation, petroleum trading, or the operation of oil and gas drilling equipment that was moved from country to country during the year.)

Within the developed countries, 62 percent of affiliate employment was in Europe, 21 percent in Canada, and the remainder about evenly divided between Japan and Australia, New Zealand, and South Africa. The United Kingdom, Germany, and France accounted for just over two-thirds of affiliate employment in Europe.

Within the developing countries, 62 percent of affiliate employment was in Latin America, 24 percent in "other Asia and Pacific," and the remainder about evenly divided between "other Africa" and the Middle East. Brazil and Mexico alone accounted for 60 percent of affiliate employment in Latin America; Argentina, Venezuela, and Colombia accounted for an additional 20 percent.

Except for trade and "other industries," the distribution of affiliate employment among the six major industries was similar for the developed and developing countries. Trade accounted for a considerably larger share, and "other industries" for a considerably smaller share, of affiliate employment in developed than in developing countries.

The higher share of trade—both wholesale and retail—in developed countries may have reflected these countries' larger, more affluent markets. In addition, protectionist policies in some of the larger developing countries, particularly those in Latin America, may have made it difficult for U.S. MNC's to penetrate their markets through exports (which, in the importing countries, are often distributed by wholesale trade affiliates).⁷ The lower share of "other industries" in developed countries largely reflected agriculture's much lower share of affiliate employment in these countries than in the developing countries.

Manufacturing accounted for about the same shares of affiliate employment in developed and developing countries (68 and 66 percent, respectively). The distribution within manufacturing, however, differed significantly between the two groups. In particular, nonelectrical machinery and transportation equipment accounted for considerably larger shares, and food, chemicals, and electrical machinery for considerably smaller shares, of manufacturing employment in developed than in developing countries.

Geographical Concentration of Affiliate Employment

Table 4 shows the geographical concentration of affiliate employment by industry, measured by the percentage of employment in each industry accounted for by the four or eight countries in which employment was largest. The 55 industries at the lowest level of aggregation are ranked on the basis of both the four- and eight-country percentages, and the eight countries in which affiliate employment was largest are listed in descending order for each industry.

For all industries combined, four countries—the United Kingdom, Canada, Germany, and France—accounted for 44 percent of affiliate employment. (Canada and the United Kingdom alone accounted for 30 percent.) These four countries, plus

Brazil, Japan, Mexico, and Australia, accounted for 65 percent.

The high geographical concentration of employment in mining reflected a number of factors. First, economically exploitable mineral resources themselves were geographically concentrated. Second, several countries that had significant resources restricted, prohibited, or otherwise discouraged foreign investment in mining. Finally, in some countries, mining was conducted largely by affiliates that not only extracted ores, but also refined them into primary metal products. Because these affiliates' sales were largely or wholly of the refined products, the affiliates generally were classified in primary metals, rather than in mining. Employment in mining would have been somewhat less concentrated geographically if these affiliates had been classified in mining.

Among the six major industries, employment was most concentrated, based on the four-country measure, in finance (except banking), insurance, and real estate. Based on the eight-country measure, it was most concentrated in mining.

Compared with other industries, employment in finance (except banking), insurance, and real estate was much more highly concentrated in Canada and the United Kingdom, particularly the former. Whereas, in most countries, finance and insurance affiliates primarily served other parts of the same MNC, in Canada and the United Kingdom, several major affiliates primarily served individuals and unaffiliated companies. Employment of these affiliates tended to be considerably larger than that of affiliates whose operations were confined to providing services within the MNC. The concentration of these more labor intensive activities in Canada and the United Kingdom probably reflected the importance to such activities of a common language and the absence of cultural barriers, the restrictions on foreign ownership of insurance companies in a number of other countries, and the tendency for purchases of insurance to be high relative to national income in Canada.

Of the six major industries, employment was least concentrated in the heterogeneous "other industries" cat-

7. The higher share of trade in developed countries also reflected the classification problem involving a minority-owned affiliate that was mentioned in footnote 6.

Table 4.—Concentration Among Countries of Employment of Foreign Affiliates, 1977

	Number of employees	Employment accounted for by				Eight countries in which employment was largest ¹
		Four countries		Eight countries		
		Percent	Rank	Percent	Rank	
All industries	7,199,891	44.4		64.7		United Kingdom, Canada, Germany, France, Brazil, Japan, Mexico, Australia
Mining	187,816	47.3		78.2		Canada, Australia, Zambia, South Africa, Mexico, Peru, Brazil, Liberia
Metal mining	168,321	60.6		78.4		Canada, Zambia, South Africa, Australia, Peru, Mexico, Brazil, Liberia
Iron	36,894	82.3	1	99.7	1	Canada, Australia, Liberia, Brazil, Guatemala, Spain, Norway, Gabon
Copper, lead, zinc, gold, and silver	79,839	65.1	22	90.2	7	Zambia, Peru, Canada, South Africa, Mexico, Australia, Namibia, Argentina
Bauxite, other ores, and services	51,398	66.2	17	90.4	6	South Africa, Australia, Canada, Gabon, Jamaica, Botswana, Brazil, Dominican Republic
Coal and other nonmetallic minerals	19,486	87.4	2	95.6	4	Canada, Australia, Mexico, Iran, Spain, Brazil, Malaysia, Colombia
Petroleum	369,965	38.6		58.7		Canada, United Kingdom, Saudi Arabia, International, Germany, Japan, Indonesia, Trinidad and Tobago
Oil and gas extraction	96,207	43.9		61.6		Canada, Indonesia, International, United Kingdom, Libya, Norway, Iran, Nigeria
Crude petroleum (no refining) and gas	44,702	65.1	18	83.8	18	Indonesia, Canada, Libya, Trinidad and Tobago, United Kingdom, Netherlands, Norway, United Arab Emirates
Oil and gas field services	51,505	88.1	83	67.3	54	International, United Kingdom, Iran, Canada, Algeria, Norway, Saudi Arabia, Germany
Petroleum and coal products	185,613	54.8		76.4		Canada, Saudi Arabia, United Kingdom, Japan, Germany, France, Trinidad and Tobago, Italy
Integrated refining and extraction	106,086	91.5	5	99.0	2	Canada, Saudi Arabia, Germany, United Kingdom, Trinidad and Tobago, France, Bahrain, Colombia
Refining without extraction	73,427	49.0	36	65.7	47	Japan, Italy, Spain, United Kingdom, Germany, South Africa, South Korea, Netherlands
Petroleum and coal products, nec	6,098	69.0	11	82.7	20	United Kingdom, Australia, Mexico, Germany, Netherlands, South Africa, Canada, Japan
Petroleum wholesale trade	59,901	35.5	65	58.3	55	Australia, Sweden, United Kingdom, Japan, Brazil, South Africa, Ireland, Greece
Other	32,184	75.3	6	58.3	13	International, Germany, Netherlands, United Kingdom, Brazil, Canada, Lebanon, Israel
Manufacturing	4,848,367	46.8		67.8		United Kingdom, Canada, Germany, Brazil, France, Mexico, Japan, Spain
Food and kindred products	496,216	42.4		89.0		Canada, United Kingdom, Dominican Republic, Mexico, Brazil, Philippines, Germany, France
Grain mill and bakery products	90,080	45.4	45	89.4	42	Canada, United Kingdom, Italy, France, Mexico, Spain, Brazil, Australia
Beverages	58,188	48.8	51	88.8	46	Canada, Mexico, United Kingdom, Brazil, Philippines, South Africa, Thailand, Spain
Other	289,968	47.0	39	67.5	45	Canada, United Kingdom, Dominican Republic, Philippines, Mexico, Brazil, Germany, Venezuela
Chemicals and allied products	614,086	42.4		63.4		United Kingdom, Brazil, Canada, Mexico, Germany, France, India, Japan
Industrial chemicals and synthetics	228,900	48.3	38	70.3	39	Canada, Brazil, Mexico, United Kingdom, Germany, Japan, Netherlands, Belgium
Drugs	178,237	38.7	54	59.4	62	United Kingdom, Brazil, India, Mexico, Italy, France, Germany, Argentina
Soap, cleaners, and toilet goods	117,839	42.8	56	67.7	44	United Kingdom, Canada, Mexico, France, Brazil, Germany, Japan, Italy
Agricultural chemicals	27,794	51.9	34	71.5	38	India, Brazil, Canada, Australia, South Korea, Argentina, France, Netherlands
Other	65,486	52.9	31	72.6	32	United Kingdom, Canada, France, Brazil, Mexico, Japan, Belgium, Germany
Primary and fabricated metals	386,241	51.7		78.2		United Kingdom, Canada, France, Germany, Mexico, Spain, Brazil, Australia
Primary metal industries	171,915	53.0		75.1		United Kingdom, Spain, France, Canada, Mexico, Brazil, Germany, Australia
Ferrous	87,011	63.7	27	68.8	11	Spain, Canada, Mexico, Brazil, France, United Kingdom, Germany, Italy
Nonferrous	104,904	55.1	30	73.4	33	United Kingdom, France, Mexico, Australia, Canada, India, Surinam, Germany
Fabricated metal products	224,326	59.7	25	80.2	26	Canada, United Kingdom, Germany, Mexico, Brazil, France, Netherlands, Australia
Machinery, except electrical	622,374	58.7		81.2		United Kingdom, France, Germany, Canada, Brazil, Italy, Japan, Mexico
Farm and garden machinery and equipment	59,647	66.3	16	88.5	10	United Kingdom, Germany, France, Belgium, Brazil, Australia, Argentina, Mexico
Construction and related machinery	151,972	55.4	29	80.0	26	United Kingdom, France, Brazil, Germany, Japan, Canada, Italy, Australia
Office and computing machines	286,488	64.8	19	88.7	9	France, Germany, United Kingdom, Canada, Japan, Italy, Netherlands, Brazil
Other	209,257	59.1	26	83.0	19	United Kingdom, Canada, France, Brazil, Germany, Italy, Mexico, Japan
Electric and electronic equipment	736,254	73.3		62.1		United Kingdom, Canada, Germany, Brazil, Mexico, Taiwan, Spain, Italy
Household appliances	117,066	66.6	15	84.6	17	Canada, United Kingdom, Germany, Australia, Brazil, Mexico, Spain, Italy
Radio, television, and communication equipment	348,969	66.7	40	73.3	34	Germany, United Kingdom, Spain, Italy, Taiwan, Brazil, France, Belgium
Electronic components and accessories	219,836	46.8	42	68.8	43	Taiwan, Mexico, Malaysia, United Kingdom, Singapore, France, Hong Kong, Germany
Other	170,288	48.7	37	72.0	36	Brazil, Canada, United Kingdom, Mexico, India, Belgium, Spain, France
Transportation equipment	909,638	68.2		82.4		Germany, United Kingdom, Canada, France, Brazil, Australia, Japan, Mexico
Motor vehicles and equipment	838,041	68.7	27	82.8	31	United Kingdom, Germany, Canada, France, Brazil, Australia, Japan, Mexico
Other	71,597	85.6	3	97.6	3	Germany, Canada, Spain, France, Italy, Taiwan, Brazil, United Kingdom
Other manufacturing	1,109,088	47.1		66.6		Canada, United Kingdom, Brazil, Mexico, France, Germany, Japan, Australia
Tobacco manufactures	51,734	49.3	46	64.2	48	United Kingdom, Brazil, Pakistan, Netherlands, Germany, Canada, Venezuela, Mexico
Textile products and apparel	142,089	51.5	36	72.1	35	Canada, Philippines, United Kingdom, Mexico, Belgium, Venezuela, Brazil, France
Lumber, wood, furniture, and fixtures	57,779	64.3	20	72.9	27	Canada, United Kingdom, Philippines, Brazil, South Africa, Indonesia, France, Singapore
Paper and allied products	181,458	56.6	28	76.4	33	Canada, Brazil, United Kingdom, France, Mexico, Australia, Netherlands, Germany
Printing and publishing	33,671	70.0	8	88.2	14	United Kingdom, Canada, Mexico, Australia, Germany, France, Hong Kong, Italy
Rubber products	129,074	46.1	44	63.0	50	United Kingdom, Canada, Japan, Brazil, Mexico, Spain, France, Germany
Miscellaneous plastics products	38,694	44.3	47	71.3	37	Brazil, United Kingdom, Germany, Canada, France, Mexico, Belgium, Australia
Glass products	88,198	62.5	32	78.6	29	United Kingdom, Canada, Germany, Japan, Brazil, France, Venezuela, Argentina
Stone, clay, cement, and concrete	82,892	46.1	43	69.9	46	Canada, United Kingdom, Mexico, France, Italy, Germany, Brazil, Japan
Instruments and related products	176,790	61.6	24	81.8	23	United Kingdom, Germany, Canada, France, Japan, Italy, Brazil, Mexico
Other	112,461	46.7	41	69.6	41	Canada, United Kingdom, Mexico, Germany, Brazil, France, Hong Kong, Taiwan
Trade	999,312	59.1		74.9		Canada, Japan, United Kingdom, France, Germany, Australia, Mexico, Belgium
Wholesale trade	564,515	50.2		86.2		Japan, United Kingdom, Canada, Germany, France, Switzerland, Italy, Australia
Durable goods	841,085	59.5	52	88.9	53	United Kingdom, Canada, Germany, Japan, France, Switzerland, Australia, Belgium
Nondurable goods	288,580	67.8	13	76.3	30	Japan, United Kingdom, France, Germany, Canada, Iran, Switzerland, Brazil
Retail trade	425,097	72.0	7	89.7	8	Canada, United Kingdom, France, Mexico, Australia, Japan, Germany, Brazil
Finance (except banks), insurance, and real estate	33,745	62.6		78.7		Canada, United Kingdom, Austria, Japan, Australia, Germany, Brazil, Venezuela
Finance, except banking	24,273	89.9	9	85.0	15	Canada, United Kingdom, Australia, Japan, Germany, Venezuela, France, Brazil
Insurance	61,880	88.9	12	79.5	28	Canada, United Kingdom, Austria, Japan, Brazil, Germany, Australia, Netherlands
Real estate	1,527	87.0	14	84.8	16	Canada, Hong Kong, Dominican Republic, Bahamas, Australia, France, Indonesia, Spain
Holding companies	6,025	63.4	23	56.3	12	Venezuela, Hong Kong, United Kingdom, Belgium, Philippines, Canada, Panama, Switzerland
Other industries	745,996	35.6		49.3		Canada, United Kingdom, Brazil, France, Saudi Arabia, Germany, Liberia, Australia
Agriculture, forestry, and fishing	130,483	52.3	33	80.5	34	Liberia, Philippines, Honduras, Costa Rica, Indonesia, Panama, Guatemala, Mexico
Construction	179,447	43.7	49	64.0	49	Canada, Brazil, Saudi Arabia, Iran, France, United Kingdom, Australia, Italy
Transportation, communication, and public utilities	85,049	69.5		80.2		Canada, International, Germany, Spain, Colombia, Netherlands, United Kingdom, Dominican Republic
Transportation	48,096	69.2	10	82.3	22	International, Canada, Colombia, Germany, United Kingdom, Australia, Saudi Arabia, Brazil
Communication and public utilities	36,953	82.1	4	91.7	3	Canada, Germany, Spain, Dominican Republic, Netherlands, Barbados, Bolivia, Philippines
Services	306,067	44.1	49	69.3	51	Canada, United Kingdom, France, Germany, Brazil, Saudi Arabia, Australia, Mexico

1. Countries are listed in descending order of affiliate employment.

egory. Low concentration in that category primarily reflected concentration of the various subindustries in different countries, rather than low geographical concentration in individual subindustries. For instance, in agriculture, forestry, and fishing, none of the eight countries in which affiliate employment was largest were included in the analogous list of countries for construction. Aside from "other industries," employment was least concentrated in petroleum. U.S. MNC's in petroleum had extensive operations in many countries, including both developed countries, where affiliates were primarily engaged in refining and distribution, and developing countries, where they were primarily engaged in exploration for and extraction of crude oil. (In a few countries, such as Canada and the United Kingdom, affiliates conducted significant operations of both types.)

Within manufacturing, employment was most concentrated in transportation equipment and in nonelectrical machinery. The high concentration in these industries may have reflected the large scale of operations characteristic of the production of goods such as automobiles, farm and indus-

trial machinery, and computers. U.S. investment in the automobile manufacturing industry, for instance, was concentrated in a few countries that were large consumers of autos and possessed the various resources needed to produce them on an efficient scale.

Manufacturing employment was least concentrated in food products and chemicals. The low concentration in food may have partly reflected protectionist agricultural policies that, in many countries, have indirectly favored local processing of domestic agricultural products. It may also have reflected limited opportunities for economies of scale, and spoilage and high transportation cost that may have arisen if production had been more highly concentrated. In chemicals, especially pharmaceuticals, U.S. investors may have decided to produce in a number of countries partly to facilitate compliance with the particular regulatory requirements of each country. In petrochemicals, the low concentration may have reflected need for proximity to geographically dispersed petroleum resources or refineries.

Size Distribution of Employment

Table 5 shows, by industry, the number of parents and affiliates, and their respective employment, in each of several employment size classes, together with three summary statistics for total employment in each industry—the mean, median, and coefficient of variation. In this table, the "total" of U.S. parents and foreign affiliates refers only to the number that had employees. There were 3,053 parents and 20,670 affiliates that had employees, and 367 parents and 2,971 affiliates that had no employees.⁸

8. Practically all of the parents that had no employees were individuals, estates, or trusts, none of which were required to report employment (or any other financial and operating data) in the benchmark survey. The affiliates that had no employees were spread over a number of industries. When no employment was reported for an affiliate, BEA generally contacted the U.S. parent company to determine why. In many cases, it was found that labor services for the affiliate had been contracted out to another company, usually another of the parent's foreign affiliates. For instance, several affiliates engaged in oil and gas extraction did not carry employees on their own payrolls, but instead used the employees of affiliates in the oil and gas field services industry on a contractual basis.

Table 5.—Distribution of Employment Among U.S. Parents and

	Line	Size classes											
		Total ¹		1-10		11-100		101-1,000		1,001-10,000		Over 10,000	
		Parents or affiliates	Employees	Parents or affiliates	Employees	Parents or affiliates	Employees	Parents or affiliates	Employees	Parents or affiliates	Employees	Parents or affiliates	Employees
U.S. Parents													
All Industries	1	3,856	3,884,638	155	493	324	16,336	1,883	476,564	1,865	3,749,538	411	14,641,701
Mining	2	29	85,542	2	(*)	5	206	8	4,836	13	(*)	1	(*)
Petroleum	3	157	896,511	16	63	27	1,199	46	19,182	47	155,487	21	714,590
Manufacturing	4	1,838	11,775,031	8	28	113	7,046	108	813,588	735	2,496,436	276	8,937,381
Food and kindred products	5	112	1,016,102	0	0	4	284	35	15,291	46	189,860	29	811,297
Chemicals and allied products	6	194	1,207,676	0	0	15	967	73	25,420	83	225,963	31	946,225
Primary and fabricated metals	7	277	1,484,286	0	0	34	1,467	110	48,007	112	428,945	41	1,010,817
Machinery, except electrical	8	820	1,546,343	0	0	19	1,318	187	60,420	135	435,235	39	1,049,379
Electric and electronic equipment	9	223	1,274,030	2	(*)	9	(*)	85	36,636	102	327,146	25	907,707
Transportation equipment	10	84	2,289,002	1	(*)	3	(*)	13	7,079	84	118,506	33	2,182,354
Other manufacturing	11	628	2,956,885	3	(*)	39	(*)	283	189,733	243	776,431	89	2,063,331
Trade	12	374	2,471,642	32	106	104	4,681	185	54,835	62	203,837	40	2,306,653
Finance (except banking, insurance, and real estate)	13	244	862,094	84	177	31	1,380	49	22,230	58	217,434	22	620,783
Other industries	14	416	2,829,106	15	(*)	44	1,948	168	65,803	170	(*)	51	(*)
Foreign Affiliates													
All industries	15	28,870	7,186,881	2,319	15,147	9,853	384,768	7,169	2,331,163	1,281	2,035,456	69	1,429,564
Mining	16	227	187,816	27	120	85	3,815	36	36,530	43	(*)	1	(*)
Petroleum	17	1,371	356,805	340	1,504	646	25,772	363	117,548	70	174,288	2	50,883
Manufacturing	18	9,437	4,843,937	415	2,447	3,324	162,854	4,749	1,512,418	900	2,140,732	48	289,448
Food and kindred products	19	823	436,216	30	170	298	12,681	439	155,981	93	210,228	3	56,836
Chemicals and allied products	20	2,192	614,688	92	524	885	43,548	1,090	324,492	123	(*)	1	(*)
Primary and fabricated metals	21	1,080	396,241	68	316	445	21,806	504	166,712	71	(*)	2	(*)
Machinery, except electrical	22	1,247	627,374	77	446	454	22,254	888	196,048	123	(*)	6	(*)
Electric and electronic equipment	23	976	756,324	89	238	253	13,578	539	213,024	142	380,301	10	168,195
Transportation equipment	24	458	992,928	14	72	84	4,410	245	87,315	94	295,382	21	512,445
Other manufacturing	25	2,851	1,160,068	112	687	945	45,583	1,344	448,410	256	557,304	5	57,034
Trade	26	5,505	990,312	1,404	7,961	3,069	110,291	968	238,178	114	291,087	10	342,900
Finance (except banking, insurance, and real estate)	27	1,030	93,745	422	1,608	423	15,517	168	46,788	17	29,834	0	0
Other industries	28	3,090	706,855	510	2,809	1,666	87,210	591	279,848	117	(*)	0	(*)

*Less than 0.5 percent.

¹Suppressed to avoid disclosure of data of individual companies.

1. Refers only to parents and affiliates that had employees. There were 367 parents and 3,071 affiliates that had no employees. See text for discussion.

U.S. parents

Employment of U.S. parents was highly skewed toward the larger companies. Parents having over 1,000 employees accounted for 97 percent of the employment of all parents, but for only about one-half of the number of parents. Parents in the largest employment size class—over 10,000 employees—accounted for 78 percent of the employment of parents, but for only 13 percent of the number. In every industry except mining, where the proportion was much lower, parents in the largest employment size class accounted for at least two-thirds of total employment. The proportion was highest, at 94 percent, in transportation equipment. The dominance of the larger companies in the U.S. parent data reflected the considerable technological, managerial, financial, and other resources ordinarily required to establish and sustain foreign operations.

Employment of all U.S. businesses, like that of U.S. parents, was also highly skewed toward the larger companies. However, the larger companies accounted for a much lower share of total employment for all U.S. businesses than for U.S. parents. Of

all U.S. businesses covered by *Enterprise Statistics*, those with at least 1,000 employees accounted for 43 percent, and those with at least 10,000 employees for 29 percent, of total employment; a negligible proportion of the number of U.S. businesses fell into each of these employment size classes.⁹

For all industries combined, mean, or average, employment of U.S. parents was 6,175. Among the six major industries, average employment was lowest in mining (2,253) and highest in "other industries" (6,779), followed closely by trade (6,609) and manufacturing (6,406). The high average employment in "other industries" was partly due to the very high employment of a few parents in communications.

Within manufacturing, average employment of U.S. parents was by far the highest—27,250—in transportation equipment, which contained most of the Nation's largest manufacturers of automobiles, trucks, aircraft, and

parts. It was lowest—4,709—in "other manufacturing."

The median employment of parents was 948, compared with the average employment of 6,175. The large difference reflected the above-mentioned highly skewed character of the universe. For each industry shown in table 5 as well, median employment was considerably lower than average employment.

Among the six major industries, median employment ranged from 180 in finance (except banking), insurance, and real estate to 1,242 in manufacturing. Within manufacturing, it ranged from 1,051 in nonelectrical machinery to 6,436 in transportation equipment.

The coefficient of variation—the ratio of the standard deviation to the mean—indicates the relative dispersion of parent or affiliate employment around the average; the larger the coefficient, the higher the dispersion. For all parents, the coefficient was about 2. Among the six major industries, it ranged from 1.5 in mining to 5.8 in "other industries." The high dispersion in "other industries" apparently reflected the diversity of activities included in that industry, rather than diversity among compa-

9. U.S. Department of Commerce, Bureau of the Census, *1977 Enterprise Statistics: General Report on Industrial Organization* (Washington, D.C.: U.S. GPO, 1981), p. 146.

Foreign Affiliates, by Industry and Employment Size Class, 1977

Size classes												Summary statistics			Line
Percent												Number of employees		Coefficient of variation	
Total	1-10	11-100	101-1,000	1,001-10,000	Over 10,000	Mean	Median								
Parents or affiliates	Employees	Parents or affiliates	Employees	Parents or affiliates	Employees	Parents or affiliates	Employees	Parents or affiliates	Employees	Parents or affiliates	Employees	Mean	Median	Coefficient of variation	Line
100	100	6	(*)	11	(*)	36	3	36	20	13	73	6,175	948	2.05	1
100	100	7	(*)	17	(*)	28	2	45	(*)	3	3	2,253	864	1.50	2
100	100	10	(*)	17	(*)	29	2	30	18	13	30	5,672	852	3.06	3
100	100	(*)	(*)	6	(*)	39	3	40	21	15	76	6,406	1,242	3.23	4
100	100	(*)	(*)	4	(*)	32	3	40	19	25	80	9,078	2,325	1.61	5
100	100	(*)	(*)	3	(*)	39	3	35	19	21	78	6,225	1,272	1.39	6
100	100	(*)	(*)	9	(*)	40	3	40	29	11	68	5,359	1,126	2.09	7
100	100	(*)	(*)	6	(*)	43	4	42	28	9	69	4,892	1,051	2.94	8
100	100	1	(*)	4	(*)	38	3	49	26	11	71	6,713	1,294	3.58	9
100	100	1	(*)	4	(*)	16	(*)	41	5	39	94	27,250	6,436	2.61	10
100	100	1	(*)	6	(*)	49	4	39	26	14	70	4,709	1,161	2.04	11
100	100	5	(*)	28	(*)	36	3	17	9	11	88	6,609	301	4.37	12
100	100	34	(*)	13	(*)	20	3	24	25	9	72	8,533	180	2.99	13
100	100	4	(*)	12	(*)	33	2	41	(*)	12	(*)	6,779	1,150	3.78	14
100	100	15	(*)	44	5	35	32	5	42	(*)	29	348	84	4.37	15
100	100	11	(*)	29	2	41	20	18	(*)	(*)	(*)	792	180	2.43	16
100	100	25	(*)	44	7	26	32	5	47	(*)	14	275	42	3.29	17
100	100	4	(*)	35	3	50	33	10	44	1	13	514	156	3.55	18
100	100	4	(*)	31	3	53	36	11	43	(*)	13	680	184	2.83	19
100	100	4	(*)	40	7	50	55	6	(*)	(*)	(*)	280	123	1.90	20
100	100	5	(*)	41	6	47	42	7	(*)	(*)	(*)	367	116	2.76	21
100	100	6	(*)	36	4	47	31	10	(*)	(*)	(*)	543	130	3.35	22
100	100	3	(*)	28	2	55	28	15	48	1	22	775	256	2.68	23
100	100	3	(*)	18	1	34	11	21	33	5	56	1,985	361	3.12	24
100	100	4	(*)	28	4	51	40	10	58	(*)	5	417	149	2.17	25
100	100	26	1	66	11	17	24	2	29	(*)	36	199	25	11.27	26
100	100	41	2	41	17	16	50	2	32	(*)	91	91	18	3.02	27
100	100	17	(*)	51	10	29	40	4	(*)	(*)	(*)	223	50	3.56	28

nies engaged in similar activities. Within manufacturing, the coefficient ranged from 1.6 in food to 3.6 in electrical machinery.

Foreign affiliates

Employment of affiliates, like that of parents, was skewed toward the larger companies, although not to the same extent.¹⁰ Also, foreign affiliates tended to have much lower employment than their U.S. parents. For the typical MNC, employment of the parent greatly exceeded the combined employment of its foreign affiliates, which was, in turn, usually spread among several individual affiliates.

More than 60 percent of affiliate employment was accounted for by affiliates that had over 1,000 employees; these affiliates accounted for only 6 percent of the total number of affiliates. The affiliates in the largest size class—over 10,000 employees—accounted for 20 percent of the employment, but for only a negligible proportion of the number, of all affiliates.

Among the six major industries, the proportion of employment accounted for by affiliates that had over 1,000 employees was highest—around 80 percent—in mining and lowest—less than one-third—in finance (except banking), insurance, and real estate. In manufacturing, the proportion was highest—nearly 90 percent—in transportation equipment and lowest—less than 40 percent—in chemicals. Although economies of scale were important in both industries, they appeared less so in chemicals. Also, much more labor intensive techniques were employed in transportation equipment than in chemicals, as can be seen by comparing the value of affiliates' net property, plant, and equipment per employee in the two industries. It was \$8,917 in transpor-

Table 6.—Employment in Manufacturing (Including Petroleum and Coal Products) by All Manufacturing Establishments and by Foreign Affiliates in 10 Developed Countries, 1977

(Thousands of employees, or percent)

	All manufacturing establishments	All affiliates in manufacturing	Majority-owned affiliates in manufacturing	Foreign affiliates as percentage of all manufacturing establishments	
				All affiliates	Majority-owned affiliates
Belgium	966	128	95	12	19
Canada	1,714	657	597	38	35
Denmark	468	11	9	2	2
France	10,467	388	298	4	3
Germany	8,388	486	439	6	5
Italy	4,910	175	151	4	3
Japan	12,066	262	40	2	-
Netherlands	1,080	109	75	9	7
Sweden	968	25	19	3	2
United Kingdom	13,452	828	728	6	5

*Less than 0.5 percent.

Note.—Estimates for manufacturing establishments were prepared by the Office of Productivity and Technology, Bureau of Labor Statistics, U.S. Department of Labor. Definition and coverage of employment by all manufacturing establishments differ slightly among countries.

tation equipment, compared with \$24,988 in chemicals.

Affiliates in the two smallest size classes (100 or fewer employees) accounted for only 6 percent of employment, although they accounted for nearly 60 percent of the total number of affiliates. The proportion of employment accounted for by affiliates in these size classes exceeded 10 percent in only two industries—finance (except banking), insurance, and real estate (18 percent) and trade (12 percent). Both industries contained many affiliates established to perform some limited function, requiring only a few employees, within the MNC.

Average employment for affiliates in all industries combined was 348. Among the six major industries, average employment ranged from 91 in finance (except banking), insurance, and real estate to 792 in mining. Within manufacturing, it ranged from 280 in chemicals to 1,986 in transportation equipment.

Reflecting the skewed distribution, median employment of affiliates, at 66, was considerably lower than average employment. Among the six major industries, median employment ranged from 18 in finance (except banking), insurance, and real estate to 180 in mining. Within manufacturing, it ranged from 116 in primary and fabricated metals to 361 in transportation equipment.

The coefficient of variation of employment for affiliates was 4.9, much higher than that for U.S. parents. The higher dispersion of affiliate em-

ployment reflected wider variation in market size for affiliates, which were spread among many countries, than for parents, which, by definition, were all in the United States. It may also have reflected wider variation among foreign countries than within the United States in several other determinants of company size—such as relative prices of factors of production, availability of skilled labor and trained management, ability to utilize available technology, government regulations, and infrastructure.

Among the six major industries, the coefficient of variation ranged from 2.6 in mining to 11.3 in trade.¹¹ Within manufacturing, it ranged from 1.9 in chemicals to 8.1 in transportation equipment.

Affiliates' Shares of Total Foreign Manufacturing Employment

In table 6, affiliate employment in manufacturing is compared with employment by all manufacturing establishments in 10 developed countries for which consistently defined, reasonably comparable data were readily available. To conform to the treatment in the data for all manufacturing establishments, the petroleum

10. Differences in skewness could not confidently be ascertained by inspection of table 5 alone because of the limited number of size classes and differences between parents and affiliates in average employment. Instead, Karl Pearson's measure of skewness was used. The measure is 3 multiplied by the difference between the mean and the median, all divided by the standard deviation. Positive values indicate positive skewness; negative values, negative skewness. By definition, the measure cannot exceed 3 in absolute value; in practice, values larger than 1 are said to be uncommon. The measure had a value of 1.23 for parents and 0.50 for affiliates. See Frederick E. Croxon and Dudley J. Cowden, *Practical Business Statistics* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1960), p. 259.

11. The coefficient for trade was significantly inflated by the previously mentioned misclassification of a minority-owned affiliate in wholesale trade. However, even if the affiliate's classification could have been corrected, trade would still have shown the most variable employment of any major industry.

and coal products industry, which is normally included in the petroleum industry in the MNC data, was included in manufacturing in this table.¹² One comparability problem that could not be resolved was that the data covering all foreign manufacturing were for *establishments* classified in manufacturing, whereas the data for affiliates were for *enterprises*, or companies, classified in manufacturing. (A given enterprise may have consisted of several establishments, not necessarily all in manufacturing.) Although the difference in classification is likely to have caused only minor problems at the all-manufacturing level, it more or less precluded detailed comparisons for industries within manufacturing.¹³

Table 6 shows affiliate employment both for all foreign affiliates and for majority-owned foreign affiliates (MOFA's)—i.e., affiliates that were owned over 50 percent by their U.S. parents and that were thus presumed to be unambiguously under parent control.¹⁴

The share of all affiliates in total foreign manufacturing employment was considerably higher in Canada, at 38 percent, than in any of the nine other countries. Both Canada's proximity to, and strong economic ties with, the United States probably contributed to the particularly high affiliate share. The next highest affiliate shares were in Belgium (12 percent) and the Netherlands (9 percent). The lowest shares were in Denmark and Japan (2 percent in each).

Shares for the MOFA's were highest and lowest in the same countries as shares for all affiliates. In most cases, the shares were only moderately lower for MOFA's than for all af-

filates, because MOFA's generally accounted for a large share of all-affiliate employment in manufacturing. A notable exception was in Japan, where the MOFA share of all-affiliate employment was only about 20 percent. The unusually low MOFA share in Japan largely reflected that country's restrictions, which had only recently been liberalized, on majority ownership by foreigners. It also reflected the existence of a few large minority-owned Japanese affiliates in which the purpose of U.S. parents' investment was primarily to further trading relationships, rather than to control the enterprises.

Although comparable data covering developing countries could not be obtained, rough estimates were made for a few countries using data published by the Bureau of Labor Statistics.¹⁵ The estimates were constructed by multiplying the number of persons in the labor force by the percentage of the labor force engaged in manufacturing. The estimates overstate manufacturing employment to the extent that the labor force data included unemployed persons. Also, inconsistencies in coverage and definitions appeared larger for these countries than for the 10 developed countries shown in table 6. Although none of these comparability problems can be quantified or corrected here, the estimates nevertheless roughly indicate the relative shares of affiliates in total manufacturing employment in developing countries. These shares were about 11 percent in Venezuela, 9 percent in Mexico, 4 percent in Taiwan, and 1 percent in both Israel and Korea.

Compensation Per Hour of Production Workers in Manufacturing

Table 7 shows compensation per hour worked (CPH) by production workers in manufacturing and in petroleum and coal products for both U.S. parents and their MOFA's.¹⁶

15. U.S. Department of Labor, Bureau of Labor Statistics, *Handbook of Labor Statistics* (Washington, D.C.: U.S. GPO, December 1980), table 177.

16. Data needed to compute CPH in other industries were collected in the benchmark survey, but they were not considered to be of publishable quality (see U.S. *Direct Investment Abroad, 1977*, p. 12). Because the number, hours worked, and compensation of production workers were not collected for minority-owned affiliates, CPH of their production workers could not be computed.

The compensation rates indicate comparative levels of employer labor costs. They do not reliably indicate relative living standards of workers for several reasons, including the fact that prices of goods and services, particularly those not traded internationally, vary greatly among countries. Also, it should be noted that CPH indicates only labor cost per unit of time worked, not per unit of output. The two measures may vary independently because of variations in productivity. Estimates of unit labor costs will be derivable after BEA has completed a project to estimate gross product originating in (i.e., value added by) U.S. parents and their MOFA's.

For U.S. parents in manufacturing, CPH of production workers was \$8.76. For parents in petroleum and coal products, it was slightly higher, at \$9.06. Within manufacturing, CPH ranged from \$6.50 in food to \$11.44 in transportation equipment.

For foreign affiliates in manufacturing, CPH of production workers was \$4.92. For affiliates in petroleum and coal products, it was markedly higher, at \$8.63. Within manufacturing, CPH ranged from \$3.42 in food to \$6.14 in transportation equipment.

In every industry shown in table 7, CPH was lower for foreign affiliates than for U.S. parents. This probably reflected the tendency for overall compensation rates in most foreign countries to be lower than in the United States, whether the comparison is restricted to U.S. MNC's or not.

In manufacturing, affiliate CPH was 56 percent of that for U.S. parents. In petroleum and coal products, it was 95 percent of the parent rate; the average rate for affiliates in this industry was boosted by the very high compensation of employees who possessed specific scarce skills, for which the market was effectively international, or who were willing to work under difficult or hazardous conditions, often in remote areas. Within manufacturing, affiliate CPH as a percentage of parent CPH ranged from 49 percent in electrical machinery to 71 percent in nonelectrical machinery. The higher percentage in nonelectrical machinery largely reflected the particularly high concentration of affiliate employment in that industry in developed countries where, as noted below, rates were

12. Because of the importance of petroleum affiliates in the direct investment universe and the need for analyzing the petroleum industry as a whole, the various stages of petroleum production—exploration, extraction, refining, and distribution—usually are treated as components of a single major industry group (petroleum) in direct investment statistics. In most other statistics, the various stages are classified in different groups—extraction is included in mining, refining in manufacturing, and so forth.

13. See Betty L. Barker, "A Profile of U.S. Multinational Companies in 1977," *Survey* 61 (October 1981): 42-45.

14. The coverage of the data for MOFA's was restricted to those having assets, sales, or net income of at least \$5 million; this restriction facilitated comparisons with other data in the benchmark survey that were collected only for these affiliates. The coverage lost by this restriction was small (only about 3 percent of total MOFA employment).

Table 7.—Compensation per Hour of Production Workers of U.S. Parents and Majority-Owned Foreign Affiliates in Manufacturing, 1977, Country by Industry

(Dollars per hour)

	Manufacturing								Addendum— petroleum and coal products
	Total	Food and kindred products	Chemical and allied products	Primary and fabricated metals	Machinery, except electrical	Electric and electron- ic equipment	Transportation equipment	Other manufacturing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
U.S. parents	8.78	6.58	8.45	10.85	8.58	7.38	11.44	7.16	9.86
Foreign affiliates, all countries	4.92	2.42	5.18	5.67	6.13	3.88	6.14	4.78	3.63
Developed countries	6.34	3.48	6.53	8.81	6.98	5.88	8.71	6.09	9.57
Canada	8.31	6.95	8.27	9.91	8.08	7.15	9.29	7.80	10.72
Europe	5.89	4.97	6.26	5.78	6.57	5.76	6.17	5.37	8.88
European Communities (2)	5.95	5.09	6.42	6.68	6.68	5.88	6.28	5.37	(*)
Belgium	8.00	7.80	10.44	7.04	9.50	8.22	(*)	(*)	13.08
Denmark	6.42	4.92	(*)	(*)	(*)	7.51	(*)	(*)	(*)
France	7.04	6.40	6.11	6.58	7.89	6.80	7.73	6.18	(*)
Germany	8.42	7.58	8.97	7.48	8.06	7.51	8.50	8.06	12.66
Ireland	3.86	2.61	5.06	2.68	3.22	2.90	(*)	3.40	(*)
Italy	5.83	5.32	6.25	5.82	6.41	5.99	6.38	5.28	9.17
Luxembourg	8.97	(*)	(*)	(*)	8.04	(*)	(*)	(*)	(*)
Netherlands	8.14	7.92	9.06	7.29	8.59	6.98	(*)	(*)	13.50
United Kingdom	3.84	2.58	3.85	3.73	4.27	3.98	3.88	3.59	5.17
Other Europe	5.30	3.72	4.95	4.02	7.23	5.33	4.81	5.37	(*)
Austria	2.58	4.38	(*)	(*)	(*)	(*)	(*)	8.31	(*)
Greece	2.73	(*)	3.80	(*)	(*)	2.88	(*)	2.48	(*)
Norway	9.16	(*)	7.83	(*)	(*)	(*)	(*)	2.50	(*)
Portugal	2.39	2.90	(*)	(*)	(*)	(*)	(*)	2.47	(*)
Spain	4.82	3.23	4.92	4.79	4.45	5.07	4.98	4.44	(*)
Sweden	9.13	(*)	10.11	8.04	11.00	(*)	8.45	(*)	(*)
Switzerland	7.24	(*)	7.45	(*)	3.80	7.87	(*)	7.06	(*)
Turkey	2.99	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Other	2.28	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Japan	7.87	6.58	6.11	7.91	8.61	6.07	(*)	5.93	(*)
Australia, New Zealand, and South Africa	4.55	3.91	4.85	3.80	4.81	3.69	5.31	3.88	7.42
Australia	6.10	8.14	6.25	5.35	6.45	6.20	6.16	5.78	12.21
New Zealand	3.12	2.88	3.10	(*)	4.19	2.85	(*)	(*)	(*)
South Africa	1.80	1.24	2.06	2.10	2.95	1.55	(*)	(*)	4.14
Developing countries	1.74	1.88	2.52	2.38	2.53	1.10	2.91	1.77	6.67
Latin America	2.17	1.16	2.73	2.89	2.86	1.63	3.00	2.17	4.45
South America	2.47	1.88	2.78	2.64	3.05	1.82	2.97	2.27	(*)
Argentina	2.28	1.22	2.16	2.37	3.25	1.66	3.25	1.93	(*)
Brazil	2.37	1.91	3.83	2.25	3.02	1.76	2.69	1.99	(*)
Chile	2.30	(*)	4.12	1.57	(*)	(*)	(*)	(*)	(*)
Colombia	2.00	1.78	1.41	(*)	(*)	(*)	(*)	2.59	(*)
Ecuador	1.94	1.92	1.82	(*)	(*)	(*)	(*)	(*)	(*)
Peru	2.24	1.65	1.82	(*)	(*)	1.50	(*)	2.75	(*)
Venezuela	3.63	2.75	4.11	3.28	(*)	2.89	4.42	3.97	(*)
Other	2.58	1.02	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Central America	1.93	(*)	2.57	1.98	2.58	1.42	3.13	(*)	4.45
Mexico	2.06	1.60	2.98	1.96	2.69	1.46	3.15	2.84	(*)
Panama	2.18	(*)	2.68	(*)	(*)	(*)	(*)	(*)	(*)
Other	1.08	(*)	1.09	1.91	(*)	1.18	(*)	(*)	3.82
Other Western Hemisphere	.51	(*)	3.19	(*)	(*)	(*)	(*)	(*)	(*)
Bahamas	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Bermuda	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Netherlands Antilles	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Trinidad and Tobago	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Other	(*)	(*)	1.54	(*)	(*)	(*)	(*)	(*)	(*)
Other Africa	1.20	.43	1.84	(*)	(*)	1.37	(*)	(*)	(*)
Saharan	3.43	(*)	(*)	(*)	(*)	(*)	(*)	4.21	(*)
Egypt	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Libya	4.02	(*)	(*)	(*)	(*)	(*)	(*)	4.21	(*)
Other	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Sub-Saharan	1.16	.43	1.88	(*)	(*)	1.17	(*)	(*)	(*)
Liberia	(*)	(*)	2.21	(*)	(*)	(*)	(*)	(*)	(*)
Nigeria	2.06	(*)	1.96	(*)	(*)	.94	(*)	(*)	(*)
Other	(*)	.42	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Middle East	4.08	(*)	2.88	(*)	(*)	3.13	(*)	(*)	10.82
Israel	4.70	(*)	4.70	(*)	(*)	2.44	(*)	(*)	(*)
OPEC	2.93	(*)	2.21	(*)	(*)	(*)	(*)	(*)	(*)
Iran	(*)	(*)	3.28	(*)	(*)	(*)	(*)	(*)	(*)
Other	1.18	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Other Asia and Pacific	.59	.56	1.87	(*)	(*)	.77	1.67	.74	3.97
Hong Kong	1.27	(*)	3.28	(*)	.86	1.28	(*)	1.43	(*)
India	.68	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Indonesia	.76	(*)	1.06	(*)	(*)	.46	(*)	1.01	(*)
Malaysia	.67	(*)	1.74	(*)	(*)	.68	(*)	(*)	(*)
Philippines	.67	.48	1.23	(*)	(*)	.48	(*)	(*)	(*)
Singapore	.97	(*)	(*)	(*)	1.22	.50	(*)	(*)	4.41
South Korea	1.39	(*)	(*)	(*)	(*)	1.47	(*)	(*)	(*)
Taiwan	.85	1.15	(*)	(*)	(*)	.82	(*)	.65	(*)
Thailand	.63	.82	1.61	(*)	(*)	(*)	(*)	1.88	(*)
Other	.88	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
International									
Addendum—OPEC	2.91	2.68	2.22	3.24	(*)	1.51	4.42	3.05	(*)

(*)Suppressed to avoid disclosure of data of individual companies.

generally much higher than in developing countries.

For all affiliates in manufacturing, CPH was much higher in developed countries than in developing countries—\$6.34 compared with \$1.74. CPH also varied considerably among the countries within each area group, but there was relatively little overlap in rates between the groups; thus, only a few of the highest rates for individual developing countries exceeded

ed the lowest rates for individual developed countries.

In petroleum and coal products, the rates were much closer together—\$9.57 and \$6.67, respectively. In the developing countries, many employees in petroleum had been recruited from developed countries, because workers with their specific skills were not available locally. Thus, their compensation rates did not reflect local labor market conditions but rather buoyant conditions in an international market for workers with such skills. Often the rates these workers were paid included a premium needed to induce them to work in a foreign country. This appeared particularly true of the Middle East, which accounted for a large share of employment of affiliates in petroleum and coal products.

Inspection of table 7 suggests that the differences in CPH among countries for all manufacturing industries combined also extended across industries within manufacturing. Thus, they were not exclusively due to differences in the extent to which employment was concentrated in high- or low-wage industries. For example, CPH was higher in Canada than in the United Kingdom in all seven manufacturing industries shown in the table. Although the difference in any given industry may have reflected differences in mix among subindustries, the overall pattern more likely reflected the fact that labor was not homogeneous internationally, and that world markets were not sufficiently integrated to eliminate inter-country differences in prices of the various factors of production, including labor.

Table 7 also suggests, although more tentatively, that differences in CPH among manufacturing industries tended to extend across country lines. One reason may be that, because of differences in technology or other factors, workers in some industries were more likely to be highly skilled (or, in some instances, highly organized) than those in other industries, regardless of the country in which they were employed.

To confirm and quantify these country and industry effects on CPH, statistical analysis of variance (AOV) was applied to the rates shown in table 7 for individual countries and for individual industries within man-

Table 3.—Compensation Per Hour of Production Workers in Manufacturing (Including Petroleum and Coal Products) in Selected Countries, 1977

	(Dollars)	
	All foreign businesses	Majority-owned foreign affiliates
Selected developed countries:		
Canada	7.66	8.42
Belgium	8.38	8.11
Denmark	7.28	8.67
France	6.42	7.09
Germany	7.70	8.63
Ireland	3.24	3.38
Italy	5.13	5.98
Luxembourg	8.31	8.97
Netherlands	8.11	8.29
United Kingdom	3.94	3.67
Austria	5.19	6.86
Greece	1.91	2.78
Norway	8.49	9.46
Portugal	1.08	2.39
Spain	8.19	4.82
Sweden	8.85	9.13
Switzerland	6.87	7.24
Turkey	.90	2.18
Japan	4.03	7.57
Australia	5.77	6.19
New Zealand	3.24	3.11
Selected developing countries:		
Brazil	1.45	2.37
Mexico	1.75	2.06
Venezuela	2.90	3.63
Hong Kong	.89	1.27
India	.52	.86
Israel	2.68	4.76
Singapore	.82	1.07
South Korea	.63	1.39
Taiwan	.68	.69

Note.—Estimates for all foreign businesses see unpublished data prepared by the Office of Productivity and Technology, Bureau of Labor Statistics, U.S. Department of Labor.

ufacturing.¹⁷ The AOV results indicated the existence of country differences in CPH over and above those that might have been due to differences among countries in the industry distribution of employment. This is shown by the highly significant F

(continued on p. 60)

Table 8.—Analysis of Variance of Compensation Per Hour of Production Workers of Majority-Owned Foreign Affiliates in Manufacturing, 1977

Source of variation	Line	Sum of squares	Degrees of freedom	Mean square	F ratio
All countries					
Total	1	7,408	398		
Mean, rows, and columns	2	6,987	63		
Partial analysis of mean-row-column variation: ¹					
Increment supplied by rows (countries)	3	2,031	58	35.27	21.10
Increment supplied by columns (industries)	4	51	6	10.08	6.27
Residual	5	421	245	1.72	
Developed countries					
Total	6	6,348	147		
Mean, rows, and columns	7	6,084	29		
Partial analysis of mean-row-column variation: ¹					
Increment supplied by rows (countries)	8	741	22	33.67	16.05
Increment supplied by columns (industries)	9	36	6	5.83	2.60
Residual	10	264	118	2.24	
Developing countries					
Total	11	1,140	141		
Mean, rows, and columns	12	989	40		
Partial analysis of mean-row-column variation: ¹					
Increment supplied by rows (countries)	13	218	33	6.64	3.24
Increment supplied by columns (industries)	14	32	6	5.33	4.27
Residual	15	151	121	1.25	

Note.—Data are from table 7.

1. Sum of squares divided by degrees of freedom.

2. Ratio of row or column mean square to residual mean square.

3. Because some cells in table 7 contain no data, it is not possible to factor the mean-row-column variation neatly into mean effects, row effects, and column effects. See Franklin A. Graybill, *An Introduction to Linear Statistical Models*, Vol. 1 (New York: McGraw-Hill Book Co., Inc., 1961), Chapter 13 ("Two-Way Classification with Unequal Numbers in Subclasses").

17. The routine used was one specifically applicable to a table such as table 7, in which some of the cells contain no data. See Franklin A. Graybill, *An Introduction to Linear Statistical Models*, Vol. 1 (New York: McGraw-Hill Book Co., Inc., 1961), Chapter 13 ("Two-Way Classification with Unequal Numbers in Subclasses").

The hypotheses tested using AOV were (1) that the row (country) means computed from table 7 were equal to one another, and (2) that the column (industry) means were equal. (Subtotals were excluded in computing the means.) If, for instance, the hypothesis of equal row (country) means were accepted, then systematic differences among countries in CPH in each industry would have been ruled out as an explanation for differences at the all-industry level, and the presumption would have been that these differences resulted from differences in industry mix. If, however, the hypothesis were rejected (as was in fact the case), then one would have concluded that, whatever the effect of industry mix, systematic differences among countries in CPH in each industry had an effect on the differences at the all-industries level.